Paper No. 36

UNITED STATES PATENT AND TRADEMARK OFFICE

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BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

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Ex parte XU LI, YUEXING ZHAO, DIANE J. HYMES
and JOHN M. DE LARIOS

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Appeal No. 2002-2244
Application 09/037,586

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ON BRIEF

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Before OWENS, LIEBERMAN and MOORE, *Administrative Patent Judges*.

OWENS, *Administrative Patent Judge*.

DECISION ON APPEAL

This appeal is from the final rejection of claims 53, 55, 57, 59, 62, 64-67, 70 and 71, which are all of the claims remaining in the application.

THE INVENTION

The appellants' claimed invention is directed toward a cleaning solution for semiconductor substrates. Claim 53 is illustrative:

53. A cleaning solution for cleaning semiconductor substrates comprising a solution formed by mixing:

approximately 100 ppm to approximately 2% by weight of citric acid and approximately 100 ppm to approximately 0.1% by weight of ammonium hydroxide (NH_4OH) in deionized water, wherein the cleaning solution has a pH in a range of approximately 2 to 4.

THE REFERENCES

Torii et al. (Torii)	5,972,862	Oct. 26, 1999 (filed Jul. 28, 1997)
Vines et al. (Vines)	6,048,789	Apr. 11, 2000 (filed Feb. 27, 1997)

THE REJECTIONS

The claims stand rejected under 35 U.S.C. § 103 as follows: claims 53, 55, 57, 62 and 66 over Vines, and claims 59, 64, 65, 67, 70 and 71 over Vines in view of Torii.

OPINION

We reverse the aforementioned rejection. We need to address

areas of silica and which may contain some areas of alternative material such as metal, is chemical mechanical polished, cleaned with an aqueous ammonium hydroxide solution, and etched with a mixture of hydrofluoric acid and nitric acid (abstract; col. 2, lines 25-43). "The aqueous ammonium hydroxide solution preferably includes citric acid. However, chelating and other agents may be used in addition to or instead of the citric acid" (col. 6, lines 33-36). Vines does not disclose the cleaning solution's pH or concentration of ammonium hydroxide or citric acid.

The examiner argues that the concentration of a cleaning solution is a result effective variable and that, therefore, it would have been obvious to one of ordinary skill in the art to determine the optimum concentration of ammonium hydroxide and citric acid in Vines' cleaning solution through no more than routine experimentation (answer, pages 3-4). As for the cleaning solution pH, the examiner argues that "[d]epending upon the ratio of the acidic portion of the solution to the basic portion of the

For a *prima facie* case of obviousness to be established, the teachings from the prior art itself must appear to have suggested the claimed subject matter to one of ordinary skill in the art. *See In re Rinehart*, 531 F.2d 1048, 1051, 189 USPQ 143, 147 (CCPA 1976). The mere fact that the prior art could be modified as proposed by the examiner is not sufficient to establish a *prima facie* case of obviousness. *See In re Fritch*, 972 F.2d 1260, 1266, 23 USPQ2d 1780, 1783 (Fed. Cir. 1992).

The examiner has not explained why, considering the lack of a disclosure by Vines of a criticality of the cleaning solution pH, and the disclosure by Vines that the citric acid is an optional cleaning solution component, Vines would have fairly suggested, to one of ordinary skill in the art, using a sufficient amount of citric acid in the cleaning solution to reduce the pH to approximately 2 to 4. The examiner's mere statement that the cleaning solution could be acidic (answer, page 5) is not sufficient to establish that Vines would have fairly suggested, to one of ordinary skill in the art, an acidic

The examiner relies upon Torii only for a disclosure of components recited in the appellants' dependent claims (answer, pages 5-7), and not for any disclosure that remedies the above-discussed deficiency in Vines.[1]

Accordingly, we conclude that the examiner has not carried the burden of establishing a *prima facie* case of obviousness of the appellants' claimed invention.

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[1] Also, the examiner has not established that Vines and Torii are combinable. The examiner argues that it would have been *prima facie* obvious to one of ordinary skill in the art to combine two compositions useful for the same purpose to form a

DECISION

The rejections under 35 U.S.C. § 103 of claims 53, 55, 57, 62 and 66 over Vines, and claims 59, 64, 65, 67, 70 and 71 over Vines in view of Torii, are reversed.

REVERSED

TERRY J. OWENS Administrative Patent Judge	)
PAUL LIEBERMAN Administrative Patent Judge	) BOARD OF PATENT) APPEALS AND) INTERFERENCES
JAMES T. MOORE Administrative Patent Judge	)

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Martine & Penilla, LLP
710 Lakeway Drive
Suite 170
Sunnyvale, CA 94085